

June 1977

# Smithsonian

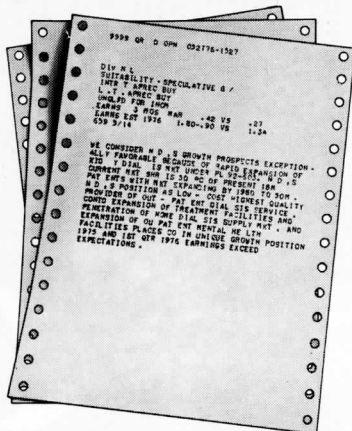


Rootin'-tootin' horseman tromps  
a lion—from Thracian treasures  
to be seen in North America (p. 42)



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## Phenomena, comment and notes

*What you were afraid to ask about  
Aztec diet, amino acids of early  
Californians, and a new musical code*

Not long ago Denys Parsons, the head of public relations at the British Library, set out to provide a means by which one could identify tunes and musical themes one doesn't know the name of. All it takes is the pitch profile of the first 16 notes. The first note is called "\*." If the next note goes up, you write U; if it goes down, you write D. If the third note goes up from the second, write U, and so forth. If the note is the same as its predecessor, it is designated R for repeat. Parsons profiled 10,000 classical melodies and 4,000 popular ones in a rare and unlikely book, *Directory of Tunes and Musical Themes*, published in England.

\*UURDU DDUDD UDR is singularly and only *The Odd Couple*, whereas the similar but ultimately altered profile, \*UURDU DDUDD DUD, is *Lizzie Borden* of "You Can't Chop Your Poppa Up in Massachusetts" fame. Make a couple of more changes and you'll come up with *If I Knew You Were Comin' I'd 'ave Baked a Cake*.

No doubt this book has proved valuable for breaking up barroom scraps, as has its rich cousin, the *Guinness Book of World Records*, but this kind of success was not nearly enough to ease Mr. Parsons' restless mind.

He set out to examine the first three notes of 7,387 themes of 30 major composers from Bach to Wagner and reports, in *New Scientist* (Vol. 73, No. 1044), a remarkable unanimity of preference.

Twenty-two of the 30 "put \*UU in the first place and no less than 26 banish \*DR to bottom place."

Mr. Parsons found 270 other classical composers and 3,763 popular songs that show the same order of preferences. Just what to make of all this, he does not say.

### *The Mexican connection*

Reporters spoiled by the unfolding of Watergate are more than ever on the lookout for coverups, and daily they hungrily probe the most innocuous of crannies for dirt—often with little effect. Some exposés are, of course, serious, such as the Congressional Korean connection.

But what investigative reporter has been assigned to the long-term coverage of the anthropological Mexican connection? The matter under discussion here has been known since early in the 16th century but, as Michael Harner writes in *Natural History* (Vol. 86, No. 4), it has been "unconsciously covered up" by modern Mexicans and by anthropologists, "the former partly for nationalistic reasons; the latter partly out of a desire to portray native peoples in the best possible light."

The Aztecs, creators of that wonderful and mysterious civilization south of the border, are widely known (though not in all elementary school texts) to have practiced human sacrifice. The latest estimates are that these civilized folk sacrificed one percent of the area's population each year—some 250,000 people per annum—to their hungry gods. A religious aberration, you may think, but if our anthropological Woodstein, Mr. Harner, is correct, the Aztec religion was akin to





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## AMAZONAS ADVENTURE

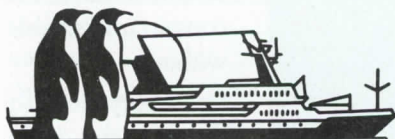
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In a 16th-century drawing, Aztec priests are cutting out a youth's heart.

the Haldeman-Ehrlichman "national security"—it arose as an excuse for what was perceived as an administrative need. What, asks Harner, did they do with the bodies? The answer lies in a census of mammal species in Middle America.

Uniquely, among major civilizations, those in pre-Columbian Mexico arose in an area where there were few—nearly no—domesticable herbivores, thus leaving a burgeoning population without the needed combinations of amino acids in their diets.

Vegetarians, calm down: 16th-century chroniclers say that the Aztec poor rarely could eat maize and beans simultaneously because of regular crop failures. The rich imported game from the far reaches of the empire.

How then to feed the masses? With people. Early records describe sacrificial victims being relieved of their hearts high atop the steep-sided temples, their bodies then being kicked over the side to tumble to the masses below. Archaeological discoveries show racks of skulls with holes for the extraction of the brains—a delicacy for the priests—as well as caches of bodies from which the limbs had been carefully removed.

Harner suggests that cannibalism, well documented in early records, arose in Mexico in response to ecological needs, and powered both religious and political life. The gods' appetites increased to demand sufficient numbers of human hearts. The political system, which allowed nearby Tlaxcalan to exist without



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its conqueror's administration, was part of an empire based on cannibalism. Tlaxcalan was "preserved as a stockyard" to supply meat to the warlike Aztec raiders. The poor were willing to serve in the raiding parties because anyone who caught a "prisoner" single-handedly several times earned the right for himself and his descendants to supplement their diets with human flesh.

Even architecture reflected the power of this grisly social force. The temples of the Aztecs (and the Toltecs before them) were very steep-sided. All the better (says Harner), to tumble the bodies down to the ravenous city folk below.

### The first Californians

Speaking of amino acids and early Man in the New World, a geochemist named Jeffrey L. Bada at the Scripps Institution of Oceanography said, three years ago, that he had evidence that people were in California some 48,000 years ago. Just about everyone scoffed, since the accepted—but hotly debated—time for human arrival upon the North American scene was a maximum of 20,000 years ago.

Dr. Bada was employing an unorthodox method to reach his unorthodox conclusion. It seems that in all living things the amino acids that make up the proteins are in what chemists call the left-handed form: the L-isomer. Over the stretch of geological time the L-isomers are changed into right-handed forms, the D-isomers. This transformation process continues until the mixture contains equal quantities of L- and D-isomers: a racemic mixture (a term first used by Pasteur in the 1840s), achieved in about 300,000 years. The process runs faster or slower in geographical areas of different temperatures. Thus, by measuring the ratio of left- to right-handed isomers, and taking climatic temperature into account, you can determine the age of a fossil. For fossils whose age can also be estimated by radiocarbon techniques, Bada's results are within an average of seven percent of the accepted results for some 25 sites throughout the world, he says.

Bada feels that he "kicked the sleeping horse" of human-arrival estimation back in 1974. He notes a tremendous surge of interest among archaeologists these days in the 40,000-to-50,000-year date.

But carbon-14 dating, we learn from *Science News* (Vol. 111, No. 13), is good

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